

Amendments to the Claims

Please amend the claims as follows:

1. (Currently amended) A method of forming a trench in a semiconductor device, comprising:

forming a polish stop layer on a semiconductor substrate;

forming an anti-reflection coating on the polish stop layer;

selectively etching the anti-reflection coating to form an anti-reflection coating pattern;

etching the polish stop layer and ~~etching~~ the semiconductor substrate to a predetermined depth to form a trench such that ends of the polish stop layer adjacent to the trench are rounded; and

forming an insulation layer that fills the trench.

2. (Currently amended) The method of claim 1, wherein etching the polish stop layer and the semiconductor substrate comprises injecting ~~is performed such that following the injection of one or more of CHF₃, CF₄, O₂, HeO₂, and Ar, creating a plasma is created and dry etching the polish stop layer and the semiconductor substrate is performed.~~

3. (Currently amended) The method of claim 2, wherein ~~the etching~~ the polish stop layer and the semiconductor substrate is performed by comprises injecting ~~one of~~ at most 60sccm of CHF₃, gas, at most 60sccm of CF₄ gas, at most 30sccm of O₂ gas, at most 60sccm of HeO₂, gas, and at most 200sccm of Ar gas.

4. (Currently amended) The method of claim 2, wherein creating a plasma comprises applying 50-500W of power ~~is applied to generate plasma in a state where~~ while injecting one or more of CHF₃, CF₄, O₂, HeO₂, and Ar ~~is injected~~.

5. (Currently amended) The method of claim 2, ~~wherein~~ further comprising creating a pressure environment of 5-100mTorr is created for use during etching the polish stop layer and the semiconductor substrate.

6. (Currently amended) The method of claim 1, ~~further comprising, prior to forming a polish stop layer on a semiconductor substrate:~~

~~forming an anti-reflection coating on the polish stop layer; and
selectively etching the anti-reflection coating to form an anti-reflection coating pattern,
wherein an area of the polish stop layer exposed through the antireflection coating pattern
is and the semiconductor substrate to a predetermined depth are etched to form the trench, and
ends of the anti-reflection coating pattern and ends of the polish stop layer under the ends of the
anti-reflection coating pattern are also etched such that the ends of the anti-reflection coating are
formed into a rounded configuration.~~

7. (Not entered)

8. (Currently amended) The method of claim ~~[[7]]~~ 6, wherein ~~the etching the polish stop layer and the semiconductor substrate comprises injecting is performed such that following the injection of one or more of CHF₃, CF₄, O₂, HeO₂, and Ar, creating a plasma is created and dry etching the polish stop layer and the semiconductor substrate is performed.~~

9. (Currently amended) The method of claim 8, wherein ~~the etching the polish stop layer and the semiconductor substrate is performed by~~ comprises injecting ~~one of~~ at most 60sccm of CHF₃ gas, at most 60sccm of CF₄, gas, at most 30sccm of O₂ gas, at most 60sccm of HeO₂ gas, and at most 200sccm of Ar gas.

10. (Currently amended) The method of claim 8, wherein creating a plasma comprises applying 50-500W of power is applied to generate plasma in a state where while injecting one or more of CHF₃, CF₄, O₂, HeO₂, and Ar is injected.

11. (Currently amended) The method of claim 8, ~~wherein~~ further comprising creating a pressure environment of 5-100mTorr ~~is created for use during etching the polish stop layer and the semiconductor substrate.~~

12. (Currently amended) The method of claim 1, wherein the polish stop layer ~~is deposited to~~ has a thickness of 1000-3000Å.

13. (Currently amended) The method of claim 1, wherein the polish stop layer ~~is made of~~ comprises a material that is more slowly polished than an insulation material of the insulation layer.

14. (Currently amended) The method of claim 13, wherein the polish stop layer ~~is formed of~~ comprises a silicon nitride layer ~~deposited to~~ having a thickness of 1000-3000Å.

15. (Currently amended) The method of claim 14 ~~wherein etching the polish stop layer and the semiconductor substrate comprises injecting is performed such that following the injection of one or more of CHF₃, CF₄, O₂, HeO₂, and Ar, creating a plasma is created and dry etching the polish stop layer and the semiconductor substrate is performed.~~

16. (Currently amended) The method of claim 15, wherein ~~the etching the polish stop layer and the semiconductor substrate is performed by~~ comprises injecting ~~one of~~ at most 60sccm of CHF₃, gas, at most 60sccm of CF₄ gas, at most 30sccm of O₂ gas, at most 60sccm of HeO₂, gas, and at most 200sccm of Ar gas.

17. (Currently amended) The method of claim 15, wherein creating a plasma comprises applying 50-500W of power ~~is applied to generate plasma in a state where~~ while injecting one or more of CHF₃, CF₄, O₂, HeO₂, and Ar ~~is injected.~~

18. (Currently amended) The method of claim 15, ~~wherein~~ further comprising creating a pressure environment of 5-100mTorr is created for use during etching the polish stop layer and the semiconductor substrate.

19. (Currently amended) The method of claim 1, wherein ~~during forming an~~ the insulation layer ~~that fills the trench, following the formation of~~ comprises forming the insulation layer to cover the polish stop layer and inner walls of the trench, and chemical-mechanical polishing is ~~performed on~~ the insulation layer until the polish stop layer is exposed.

20. (Currently amended) The method of claim 1, wherein prior to forming the insulation layer, the method further comprises forming a liner oxidation layer is formed on the polish stop layer and the trench, ~~then~~ and forming the insulation layer is formed comprises depositing an insulation layer material on the liner oxidation layer such that the trench is filled with ~~a material forming the insulation layer~~ material.